

AMENDMENT TO THE DRAWINGS

The attached sheets of drawings includes changes to Figs. 4, 5, 6, 9, 11, 12, 13, 15, 16 and 17. These sheets, which include Figs. 4A, 4B, 5A, 5B, 6A, 6B, 7, 8, 9A, 9B, 10, 11A, 11B, 12A, 12B, 13A, 13B, 13C, 14, 15A, 15B, 15C, 15D, 16A, and 16B, replace the original sheets including Figs. 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, and 16.

Attachment: Replacement Sheets, 7 pages

REMARKS

Applicant would like to thank the Examiner for the careful consideration given the present application. The application has been carefully reviewed in light of the Office action, and amended as necessary to more clearly and particularly describe the subject matter which applicant regards as the invention.

Claims 1, 28, and 35-44 remain in the application. Claims 41-44 are new and consideration of these new claims is respectfully requested. Claim 1 has been amended to include the features of dependent claims 2-4 and 34, now cancelled. Claim 28 has been amended to include the features of dependent claim 29, now cancelled.

For clarification purposes only, the term "means for exchange adaptation" has been changed to "means for fastening the interchangeable head to the shaft" in both claims 1 and 36.

Claims 1-4, 15-20 and 36-37 stand rejected under 35 U.S.C. §112, first paragraph, as failing to comply with the enablement requirement. The specification describes a preferred embodiment of the equation shown in claims 1 and 36. However, this disclosure is not limiting and thus the disclosure in both the specification and the original claims is considered sufficient and enabling. Reconsideration and withdrawal of the claims rejection under 35 U.S.C. §112, first paragraph is requested.

Claim 38 has been objected to for including "that" instead of "than". This has been corrected.

Claims 1-4, 15-20 and 34-37 stand rejected under 35 U.S.C. §112, second

paragraph, as being indefinite. Regarding the equation used within claims 1 and 36, Applicant has stated above that this equation is clear and supported by the specification, including the original claims. Claim 16 which has been objected to for defining two ranges has been canceled and the subject matter re-introduced in a new dependent claim that does not include two ranges. Claim 19 has been amended to remove use of the term "such as". Reconsideration and withdrawal of the rejection of claims 1 and 35-37 under 35 U.S.C. §112, second paragraph is respectfully requested.

The drawings have been object to for including multiple figures having a single designation. This has been corrected herein and the specification amended correspondingly. Withdrawal of the objection to the drawings is respectfully requested.

Claim 28 stands rejected under 35 U.S.C. §102(b) as being anticipated by U.S. 1,797,296 to Ray (hereinafter Ray). Claim 28 has been amended to include the features of claim 29, which originally depended therefrom. Thus, Applicant addresses the rejection of claim 29 (as amended claim 28 below). Ray does not disclose the features of claim 29. Applicant requests withdrawal of the rejection of claim 28 as being anticipated by Ray.

Claims 1, 15, 16, 17 and 34 stand rejected under 35 U.S.C. 35 U.S.C. §102(b) as being anticipated by U.S. 2,164,573 to Christman (hereinafter Christman '573). Claim 1 has been amended to include the features of dependent claims 2, 3, 4 and 34. Christman '573 fails to disclose, at least, the features of claims 2, 3 and 4. Claims 15-17 and 34 have been cancelled. Reconsideration and withdrawal of the rejection of claim 1 as being anticipated by Christman '573 is respectfully requested.

Claim 28 stands rejected under 35 U.S.C. §102(b) as being anticipated by WO 97/251,173 (hereinafter WO '173). Claim 28 has been amended to include the features of dependent claim 29. WO '173 does not disclose the features of dependent claim 29. Reconsideration and withdrawal of the rejection of amended claim 28 as being anticipated by WO '173 is respectfully requested.

Claims 29, 38 and 39 stand rejected as being unpatentable over WO '173. The Office action states that in WO '173, it would have been obvious to have made the axial length of the conical projection of a dimension appropriate for the size of the workpiece being machined. Applicant respectfully disagrees. WO '173 does not teach a conical projection projecting from an end side plane surface of the shaft in the axial direction by less than 4mm. WO '173 is directed to the cutting of wood and/or wood substitutes. Reaming, and the reaming tool claimed, in contrast, involves the working of metal parts. Wood working is done at high speeds and with comparatively low forces acting on the tool. In WO '173 high speed is used as shown by the fact that the tool is mounted directly on the shaft of an electrical drive motor (without any speed reducing gears). Metal machining is done at low speeds, but with high forces acting on the tools. Thus, the two domains, wood and metal, impose different requirements on tools and tool mountings. The mounting used in WO '173 would bend and break if used in metal machining. And although smaller workpieces may require smaller tools, the axial and radial forces acting on a rotating tool remain the same, regardless of tool diameter (only torque changes with diameter). Thus, the high axial and radial forces required for metal working remain unchanged for small tools, and must be transferred by the connection lug. This teaches against reducing the size of the conical projection in WO '173 for attaching

a reaming tool.

Claims 38 and 39 depend from amended claim 28 and are believed to be patentable at least for the reasons stated above.

Reconsideration and withdrawal of the rejection of claims 29, 38 and 39 under 35 U.S.C. §103(a) over WO '173 is respectfully requested.

Claims 1, 15, 16, 17 and 34 stand rejected under 35 U.S.C. §102(b) as being anticipated or under 35 U.S.C. §103(a) as being obvious over U.S. 2,164,571 to Christman (hereinafter Christman '571). For the following reasons, the Examiners rejection is traversed.

Claim 1 has been amended to include the features of dependent claims 2, 3, 4 and 34. Christman '571 does not disclose or teach all of the features, at least, of dependent claims 2-4. Claims 15-17 and 34 have been cancelled. Reconsideration and withdrawal of the rejection of amended claim 1 as being anticipated or unpatentable over Christman '571 is respectfully requested.

Claims 2-4, 18, 36, 37 and 38 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Christman '571 in view of WO '173. For the following reasons, the Examiner's rejection is traversed.

The Office action states Christman '571 says that any suitable means can be provided for fixing the disclosed cutter to the shaft and WO '173 shows a shaft with a projecting conical lug 3 that seats in a conical opening 5 in a cutter.

The proposed combination of references is improper because the references teach away from such a combination. As previously stated, WO '173 is directed to a high speed woodworking tool. This tool is manufactured by stamping or cutting from a metal bar. WO '173 states:

The cutter may be thinner than this, depending largely upon how it is to be made, that is, whether by stamping it out of sheet metal or forming it from a bar. The cutters may be made by boring a meal bar, cutting or rolling the teeth on the bar and then cutting the individual annuluses from the bar. [page 2, lines 5-12]

The proposed combination of references is improper because the references teach away from such a combination. As previously stated, WO '173 is directed to a high speed woodworking tool. This tool is manufactured by stamping or cutting from a metal bar.

This manufacturing method taught by Christman '571 is not compatible with the formation of the projecting lug taught by WO '173. Simply put, the manufacturing methods taught by Christman '571 teach away from formation of a part having a projecting lug, such as that taught by WO '173.

Secondly, even if the references were combined in the manner proposed by the Examiner, the claimed invention would not be taught. WO '173 defines a conical surface by a lug that projects from the inner side of the tool. Without such a lug, the tool does not have sufficient thickness to provide the necessary conical surface. Thus, the lug is critical. Independent claim 1, as amended, and 36 require that the interchangeable head (1) "does not comprise an axially projecting lug..." The proposed combination of references does not meet this limitation. Reconsideration and withdrawal of the rejection of amended claim 1 and claims 36-38 under 35 U.S.C. §103(a) is respectfully requested.

Claim 19 stands rejected under 35 U.S.C. §103(a) as being unpatentable over Christman '571 or Christman '573 in view of U.S. 5,599,145 to Reinauer. Claim 19 has been cancelled, but rewritten as claims 42 and 43 that both depend from independent claim 36. As previously stated in regard to claims 1 and 36, Christman

'571 and '573 do not teach or suggest all of the features of the independent claims, specifically a projecting connecting lug. Reinauer does not cure the deficiencies in the Christman references in this regard. Thus, applicant requests that no rejection of new claims 42 and 43 in view of these references be instituted.

Claim 35 stands rejected under 35 U.S.C. §103(a) as being unpatentable over Christman '571 or Christman '573 in view of JP 10-309616. Claim 35 depends from amended claim 1. As previously stated in regard to claims 1 and 36, Christman '571 and '573 do not teach or suggest all of the features of the independent claims, specifically a projecting connecting lug. JP10-309616 does not cure the deficiencies in the Christman references in this regard. Reconsideration and withdrawal of the rejection of claim 35 is respectfully requested.

Claims 20 and 40 stand rejected under 35 U.S.C. §103(a) as being unpatentable either Christman '571 or Christman '573 in view of U.S. 2937575 to McCosky. Claim 20 has been cancelled and re-entered as claim 44 that depends from claim 36. As previously stated in regard to claims 1 and 36, Christman '571 and '573 do not teach or suggest all of the features of the independent claims, specifically a projecting connecting lug. McCosky does not cure the deficiencies in the Christman references in this regard.

Claim 40 depends from claim 28. Claim 28, as amended, requires a lug projection as well and such a lug is not taught or suggested by the Christman references or cured by the McCosky reference. Reconsideration and withdrawal of the rejection of claims 20 and 40 under 35 U.S.C. §103(a) is respectfully requested.

In light of the foregoing, it is respectfully submitted that the present application is in a condition for allowance and notice to that effect is hereby requested. If it is

determined that the application is not in a condition for allowance, the Examiner is invited to initiate a telephone interview with the undersigned attorney to expedite prosecution of the present application.

If there are any additional fees resulting from this communication, please charge same to our Deposit Account No. 18-0160, our Order No. FRR-16650.001.

Respectfully submitted,

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